

## CLAIMS

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1. An anastomosis connector, comprising:  
 5 a plurality of ring segments, together defining a radially expandable ring-like shape  
 having a lumen;  
 at least one pivot bar coupled to at least one of said ring segments; and  
 at least one spike mounted on said pivot bar and rotatable around said pivot bar,  
 wherein radial deformation of said ring-like shape does not substantially directly affect  
 said spike rotational position.
  - 10 2. A connector according to claim 1, wherein rotation of the pivot bar is mechanically  
 decoupled from radial deformation of ring-like shape.
  - 15 3. A connector according to claim 2, wherein said at least one pivot bar comprises at least  
 two pivot bars, wherein said at least one spike is mounted on a first one of said pivot bars and  
 said first pivot bar is mounted on the other pivot bar.
  - 20 4. A connector according to claim 1, wherein said at least one spike is pointed towards  
 said ring-like shape.
  5. A connector according to claim 1, wherein said at least one spike is pointed away from  
 said ring-like shape.
  - 25 6. A connector according to claim 1, wherein said at least one spike comprises at least  
 two spikes, each mounted on a separate pivot bar, wherein said spikes point in opposite  
 directions along an axis of said connector.
  - 30 7. A connector according to claim 1, wherein said connector is designed such that said at  
 least one spike remains outside of a side vessel in an end-to-side anastomosis.
  8. A connector according to claim 1, wherein said connector is designed such that said at  
 least one spike enters a side vessel in an end-to-side anastomosis.

9. A connector according to claim 1, wherein said pivot bar is comprised in a spike element.

10. A connector according to claim 9, wherein said spike element comprises two opposing spikes.

11. A connector according to claim 9, wherein said spike element interconnects two adjacent ring segments.

12. A connector according to claim 9, wherein said spike element is attached to only a single ring element.

13. A connector according to claim 1, wherein said at least one spike has a tip adapted to penetrate a blood vessel.

14. A connector according to claim 1, wherein said at least one spike has a tip adapted to lay against a blood vessel without penetrating it.

15. A connector according to claim 1, wherein said connector is heat-treated to have said at least one spike perpendicular to said ring.

16. A connector according to claim 1, wherein said connector is heat-treated to have said at least one spike parallel to said ring.

17. A connector according to claim 1, wherein said connector is heat-treated to have said at least one spike bend.

18. A connector according to claim 1, wherein said connector is heat-treated such that said at least one spike does not bend.

19. A connector according to claim 1, wherein said connector is heat-treated such that said pivot bar is twisted.

20. A connector according to claim 1, wherein said connector is heat-treated such that said pivot bar is not twisted.
21. A connector according to claim 1, wherein said pivot bar is within an axial extent of said ring-like shape.
22. A connector according to claim 21, wherein said pivot bar is substantially centered relative to said ring like shape.
23. A connector according to claim 1, wherein said pivot bar is outside an axial extent of said ring-like shape.
24. A connector according to claim 1, wherein said pivot bar is comprised in a pivot mechanism.
25. A connector according to claim 24, wherein said pivot mechanism is directly mounted onto at least one of said ring elements.
26. A connector according to claim 24, wherein said pivot mechanism is coupled via a single extension to at least one of said ring elements.
27. A connector according to claim 24, wherein said pivot mechanism is coupled via at least two extensions to at least one of said ring elements.
28. A connector according to claim 24, wherein said pivot bar is coupled to said pivot mechanism via a hinge at each end of said pivot bar.
29. A connector according to claim 28, wherein said hinge comprises a thickening of said mechanism relative to said pivot bar.
30. A connector according to claim 24, wherein said connector comprises a plurality of alternating ring segments and pivot bar mechanism and wherein said pivot bar mechanisms are axially staggered, to allow a greater radial compression of said ring-like shape.

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31. A connector according to claim 1, wherein said pivot bar is straight.
32. A connector according to claim 1, wherein said pivot bar is piece-wise straight.
- 5 33. A connector according to claim 1, wherein said pivot bar is curved.
34. A connector according to claim 1, wherein said connector is packaged.
35. A connector according to claim 34, wherein said packaging indicates a particular vessel  
10 type for said connector and for which said connector is adapted.
36. A connector according to claim 35, wherein said vessel type comprises a femoral artery.
- 15 37. A connector according to claim 35, wherein said vessel type comprises an aorta.
38. A connector according to claim 34, wherein said packaging indicates a particular vessel size for said connector and for which said connector is adapted.
- 20 39. A connector according to claim 34, wherein said packaging indicates a particular vessel wall thickness for said connector and for which said connector is adapted.
40. A connector according to claim 39, wherein said ring-like shape has an axial extent smaller than said wall thickness.
- 25 41. A connector according to claim 34, wherein said packaging indicates a particular connection geometry for said connector and for which said connector is adapted.
42. A connector according to claim 41, wherein said geometry is a side-to-end geometry.
- 30 43. A connector according to claim 34, wherein said packaging indicates a particular oblique angle geometry for said connector and for which said connector is adapted.

44. A connector according to claim 1, wherein said at least one spike is cut out of an opposing spike of said connector.

45. A connector according to claim 1, wherein at least one of said ring segments comprises a plurality of axially spaced elements.

46. A connector according to claim 45, wherein said plurality of elements comprises at least three elements.

47. A connector according to claim 45, wherein said plurality of elements comprises at least four elements.

48. A connector according to claim 45, wherein said plurality of elements comprises at least five elements.

49. A connector according to claim 45, wherein all of said plurality of elements have a same geometry.

50. A connector according to claim 45, wherein at least two of said plurality of elements have mirrored geometries.

51. A connector according to claim 45, wherein at least one of said plurality of elements has a single curve geometry.

52. A connector according to claim 45, wherein at least one of said plurality of elements has a dual curve geometry.

53. A connector according to claim 45, wherein at least one of said plurality of elements has at least three curves defined thereby.

54. A connector according to claim 45, wherein at least one of said plurality of elements has a varying width.

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55. A connector according to claim 45, wherein all of said plural elements have a constant width.
56. A connector according to claim 45, comprising a strain dissipation element at a point of connection of at least one of said elements and a spike element to which said ring segment is attached.
57. A connector according to claim 56, wherein said strain dissipation element comprises a thickening of said axially spaced element.
58. A connector according to claim 57, wherein said thickening defines an aperture.
59. A method of everting a blood vessel, comprising:  
engaging a tip of said vessel at a plurality of points around its circumference;  
inverting said tip by inverting said points; and  
pulling said inverted points towards a distal end of said blood vessel.
60. A method according to claim 59, wherein said plurality comprises at least four points.
61. A method according to claim 59, wherein said engaging comprises engaging using forceps and wherein said inverting comprises rotating said forceps.
62. A method according to any of claims 59-61, wherein said pulling comprises pulling different ones of said points different amounts.
63. Apparatus for graft eversion of a graft over a shaft having a tip, comprising:  
a handle for engaging said shaft;  
a plurality of forceps arranged to engage a tip of said graft where it protrudes from said shaft; and  
a plurality of joints, each one associated with one of said forceps, for rotating said forceps pulling a tip of each of said forceps axially along said shaft.
64. A method of measuring a graft size, comprising:

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- mounting a tip of said graft on two extensions, one extension coupled to a spring and one extension coupled to a handle;
- manipulating said handle such that said extensions separate;
- reading a measurement on a scale coupled to said spring; and
- 5 selecting an anastomosis connector responsive to said read measurement.
65. A method according to claim 64, comprising further manipulating said handle to stretch said graft tip.
- 10 66. A hole puncher, comprising:
- a sharp tip for forming a puncture in a blood vessel;
- a shaft having a varying diameter and having a depression formed therein for engaging a wall of said blood vessel, said diameter substantially matching a diameter of said tip at one end of the shaft, said diameter increasing away from said tip for a first distance and said
- 15 diameter then defining a slope of diminishing diameter towards said depression; and
- an outer tube mounted on said shaft and having an end, said outer tube having an inner diameter of said end that is in a range of diameters defined by said slope of diminishing diameters.
- 20 67. A puncher according to claim 66, wherein said end of said outer tube has a smaller outer diameter than a more proximal portion of said outer tube.
68. A puncher according to claim 66 or claim 67, wherein said diminishing diameter slope is obliquely arranged around said shaft.
- 25 69. A method of forming an oblique anastomosis connector, comprising:
- providing a non-oblique anastomosis connector;
- mounting said connector in a restraint;
- manipulating said restraints to deform said connector to a desired degree of
- 30 obliqueness; and
- heat-treating said connector after said manipulation, to maintain said distortion.
70. A method according to claim 69, comprising heat-treating said connector prior to said mounting, to train a deformation of a spike portion of said connector.

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71. A side mounted delivery system, comprising:  
a handle including an opening in its side;  
a graft delivery tool adapted to fit through said opening; and  
a groove and projection mechanism slidably interconnecting said tool and said handle.
72. A system according to claim 71, comprising a snap-lock mechanism for axially fixing said handle relative to said tool.
73. A method according to any of claims 59-61, wherein said points are inverted simultaneously.

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